WHAT IS CLAIMED IS:

1. A method for determining the effectiveness of a cancer treatment comprising:

(a) obtaining a tissue sample by non-invasive procedures from a patient undergoing the cancer treatment; and

(b) determining growth factor receptor phosphorylation in said tissue before and after the cancer treatment.

2. The method of claim 1, wherein phosphorylation of an epidermal growth factor receptor, a fibroblast growth factor receptor, an acidic fibroblast growth factor receptor, a basic fibroblast growth factor receptor, an insulin like growth factor receptor, a nerve growth factor receptor, a transforming growth factor α receptor, a transforming growth factor β receptor, a neuregulin receptor, a betacellulin receptor, a amphiregulin receptor, a heparin binding EGF-like growth factor receptor, or a cytokine growth factor receptor is determined.

3. The method of claim 1, wherein said tissue sample is a hair follicle.

4. The method of claim 1, wherein said tissue sample comprises buccal mucosa tissue.

5. The method of claim 1, wherein said tissue sample comprises a pap-smear sample.

6. The method of claim 1, wherein said tissue sample comprises bladder-wash cells.

7. The method of claim 1, wherein said tissue sample comprises skin scrapings.

8. The method of claim 1, wherein determining growth factor receptor phosphorylation comprises:

(a) obtaining a sample comprising the growth factor receptor;

(b) contacting the sample with an anti-phosphorylated growth factor receptor antibody;

(c) detecting the bound antibody.

9. The method of claim 8, wherein the antibody further comprises a detectable label.

10. The method of claim 8, wherein a second antibody that comprises a detectable label is contacted prior to the detection.

11. The method of claims 9 and 10, wherein the detectable label is selected from a group comprising a fluor, an enzyme, or a radionuclide.

12. The method of claim 8, wherein said detecting comprises immunoflourescence.

13. The method of claim 8, wherein said detecting comprises colorimetric detection.

14. The method of claim 1, wherein the patient has cancer of the breast, prostrate, colon, pancreas, head and neck, bladder, blood, bone, bone marrow, brain, esophagus, gastrointestine, brain, kidney, liver, lung, nasopharynx, ovary, skin, stomach, or uterus.

15. A method for detecting growth factor receptor phosphorylation in hair follicles, comprising:

(a) preparing a hair follicle;

(b) incubating the hair follicle with an anti-phosphorylated growth factor receptor antibody;

(c) incubating the composition of step (b) with a second antibody which comprises a detectable label; and

d) detecting the binding of the antibodies of steps (b) and (c) to the growth factor receptor.

16. The method of claim 15, wherein said growth factor receptor is an epidermal growth factor receptor, a fibroblast growth factor receptor, an acidic fibroblast growth factor receptor, a basic fibroblast growth factor receptor, an insulin like growth factor receptor, a nerve growth factor receptor, a transforming growth factor α receptor, a transforming growth factor β receptor, a neuregulin receptor, a betacellulin receptor, a amphiregulin receptor, a heparin binding EGF-like growth factor receptor, or a cytokine growth factor receptor.

17. The method of claim 15, wherein said growth factor receptor is epidermal growth factor receptor.

18. A kit for determining the effectiveness of treatment of cancer with anticancer agents, said kit comprising:

(a) components for extracting samples by non-invasive means before and after administration of an anticancer agent;

(b) components for determining phosphorylation states of growth factor receptors in the samples.

19. A method of cancer therapy comprising the steps of:

(a) determining the effectiveness of a cancer treatment in a patient by the method of claim 1;

(b) determining the need for a different cancer treatment based on the effectiveness; and

(c) administering the cancer treatment to the patient.

20. The method of claim 19, wherein the cancer treatment is designed to change growth factor receptor phosphorylation.

21. The method of claim 20, wherein said change is a decrease in the growth factor receptor phosphorylation.

22. The method of claim 20, wherein said change is an increase in the growth factor receptor phosphorylation.

23. The method of claim 20, wherein the growth factor receptor is an epidermal growth factor receptor, fibroblast growth factor receptor, acidic fibroblast growth factor receptor, basic fibroblast growth factor receptor, insulin like growth factor receptor, nerve growth factor receptor, transforming growth factor α receptor, transforming growth factor β receptor, a neuregulin receptor, a betacellulin receptor, a amphiregulin receptor, a heparin binding EGF-like growth factor receptor, or a cytokine growth factor receptor.

24. The method of claim 20, wherein the growth factor receptor is epidermal growth factor receptor.

25. The method of claim 20, wherein said cancer treatment is a chemotherapy treatment.

26. The method of claim 25, wherein said chemotherapy comprises treatment with a chemotherapeutic agent that changes the phosphorylation of a growth factor receptor.

27. The method of claim 26, wherein said chemotherapeutic agent is a protein kinase inhibitor.

28. The method of claim 27, wherein said protein kinase inhibitor is a tyrosine kinase inhibitor.

29. The method of claim 28, wherein said chemotherapeutic agent is PKI166.

30. The method of claim 28, wherein said chemotherapeutic agent is the C225 antibody.

31. The method of claim 26, wherein said protein kinase inhibitor is a serine threonine kinase inhibitor.

32. The method of claim 19, wherein the patient has breast, prostrate, colon, pancreatic, head and neck, renal, bladder, blood, bone, bone marrow, brain, esophagus, gastrointestinal, brain, kidney, liver, lung, nasopharynx, ovary, skin, stomach, or uterine cancer.

33. A method screening candidate drugs that modulate growth factor receptor phosphorylation comprising:

(a) administering a candidate drug to a non-human animal;
(b) obtaining a sample by non-invasive means;
(c) determining the phosphorylation state of a growth factor receptor in said sample

wherein a change in the phosphorylation of said growth factor receptor, as compared to the phosphorylation of the growth factor receptor from the same tissue in a non-human animal of the same species, identifies said candidate drug as a modulator of growth factor receptor phosphorylation.